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| Robert A. Kent | | | | |
| Halliburton Energy Services | | | | |
| 2600 S. 2nd Street | | | | |
| Duncan, OK 73536-0440 | | | | |
| | | EXAMINER | | |
| | | TSOY, ELENA | | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | | DELIVERY MODE |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/691,319

Applicant(s)

NGUYEN ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-67 is/are pending in the application.
- 4a) Of the above claim(s) 20-24, 27-30, 37-41, 44, 47, 50-64 and 67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 25, 26, 31-36, 42, 43, 45, 46, 48, 49, 65 and 66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9 IDSs.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Response to Amendment

Amendment filed on December 12, 2006 has been entered. Claims 1-17 have been cancelled. New claims 65-67 have been added. Claims 18-67 are pending in the application.

Election/Restrictions

Applicant's election with traverse of Group II, claims 18-27, 30-34 in the reply filed on December 12, 2006 is acknowledged. The traversal is on the ground(s) that claim 18 is generic and the limitations of claim 18 are required by both independent claims 35 and 50. Thus, claims 18-64 do not represent independent and distinct inventions, and all of these claims fall within the scope of the same invention. Therefore, for at least this reason, the restriction requirement with respect to claims 18-64 is improper.

The Examiner agrees with Applicants that claim 18 is generic to both independent claims 35 and 50 because a servicing fluid of claim 18 may be used either as a fracturing fluid or for forming a gravel pack (See specification, P5). In other words, a servicing fluid is generic to two independent and distinct species of fluid. The Examiner will join claims 35-49, 65-66 (drawn to a fracturing fluid) to elected Group II, claims 18-27, and 30-34.

Claims 28-29 of Group I and claims 50-64, and 67 (drawn to forming a gravel pack) are withdrawn from consideration as directed to a **non-elected** invention. Claims 20-24, 27, 30, 44, 47 are withdrawn from consideration as directed to a **non-elected species**.

Thus, claims 18-19, 25-26, 31-36, 42-43, 45-46, 48-49, 65-66 have been elected for examination.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Examiner Note: for examining purposes, the limitations of claims 18 and 35 directed to a method of making reduced-density coated particulates was not given a patentable weight because claims 18 and 35 are processes of using reduced-density coated particulates, and it is held that the patentability of a chemical product is independent of how it was made.

3. Claims 18-19, 25, 31-33, 35-36, 42, 45-46, 48-49, 65-66 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McDaniel et al (US 20020048676).

McDaniel et al disclose a method of treating a subterranean formation comprising providing a servicing fluid comprising low-density composite particulate proppant (See P62). It is the Examiner's position that pumping the servicing fluid into a subterranean formation is

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implied. McDaniel et al teach that a composite particle comprises finely divided mineral or finely divided mineral and fiber, bound by a suitable organic or inorganic binder (See P53). The composite particles may comprise a low density filler material (such as ground walnut shells) together with a higher density filler material (such as finely divided silica), and a binder of polymer resin and cement, so long as the respective amounts of these ingredients results in a composite particle having the desired low density of 0.90 to 2.20 gm/cm.³ (See P57). The composite particles are made in a mixer/granulator operated as a **batch** process by feeding to a mixer a binder resin particle stream and crosslinking agent stream 602 to prepare a homogeneous binder stream 606. The binder stream 606 containing resin in an amount of about 10 to about 30 weight percent of the total dry materials (resin, filler, etc.), water and conventional additives, acid stream 605, and a filler stream 607 are mixed in a high intensity mixer/granulator 608 to cure the binder and to produce a granulated product stream 616. See P246-248.

It is the Examiner's position that in the composite particles containing 10-30 wt % of the binder resin, a low density filler material attached to a higher density filler material (core particles) can be interpreted as coating, as required by claim. Note that low density filler material has similar size as high density (core) particles, as required by claims 31 and 48.

It is also the Examiner's position that reduced-density coated particulate of McDaniel et al is substantially identical to that made by claimed on-the-fly method because Applicants specification admits that on-the-fly mixing, as opposed to batch or partial batch mixing, **reduces waste and simplifies subterranean treatments**, i.e. do not affect properties of the coated particulate.

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As to claims 25, 42, the binder may be glycidyl ether (See P185) or epoxies such as bisphenol A-epichlorohydrin resin (See P187).

As to claims 42, 45-46, the binder may be a polyester resin (See P70) or a natural resin (claimed tackifying composition) (See P75).

4. Claims 18-19, 32-33, 35-36, 49, 65-66 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Beck et al (US 4,493,875).

Beck et al disclose a method of treating a subterranean formation comprising the steps of: providing a servicing fluid comprising reduced-density coated particulate proppant (See column 1, lines 11-15, 57-68). It is the Examiner's position that pumping the servicing fluid into a subterranean formation is implied. Beck et al teach that coating core particles with a reduced-density hollow microparticles can be carried out in a mixer (batch) (See column 2, lines 63-68) or by spray drying slurry of the core particles and the hollow microparticles in a binder solution (See column 3, lines 22-25).

It is the Examiner's position that reduced-density coated particulate of Beck et al is substantially identical to that made by claimed on-the-fly method because Applicants specification admits that on-the-fly mixing, as opposed to batch or partial batch mixing, **reduces waste and simplifies subterranean treatments**, i.e. do not affect properties of the coated particulate.

5. Claims 25, 42, 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al in view of McDaniel et al.

Beck et al are applied here for the same reasons as above. Beck et al further teach that a binder a resin composition could comprise a liquid resole phenol/formaldehyde resin (See

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column 4, lines 1-3). Beck et al fail to teach that the binder could be glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin (Claims 25, 42) or a polyester resin or a natural resin (Claims 45-46).

McDaniel et al are applied here for the same reasons as above. McDaniel et al teach that a liquid resole phenol/formaldehyde resin (See P53, 70, 98) or glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin (See P187) or a polyester resin (See P70) or a natural resin (See P75) can be used for binding particles together. In other words, the resins are functionally equivalent.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a resin composition comprising glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin or a polyester resin or a natural resin in Beck et al instead of a liquid resole phenol/formaldehyde resin with the expectation of providing the desired coated particles since McDaniel et al teach that a liquid resole phenol/formaldehyde resin or glycidyl ether or epoxies such as bisphenol A-epichlorohydrin resin or a polyester resin or a natural resin can be used for binding particles together.

6. Claims 18-19, 25, 31-36, 42, 45-46, 48-49, 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al in view of Nguyen et al (US 5908073).

McDaniel et al do not expressly teach that a fracturing fluid is pumped into a subterranean formation. However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract). McDaniel et al fails to teach that the reduced-density, a binder is mixed with particles on-the-fly (Claims 18, 35); the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly (Claim 34).

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Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly (See column 5, lines 47-57).

As to claim 34, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have suspended the reduced-density, coated particulates in a servicing fluid in McDaniel et al on-the-fly since Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly.

As to claims 18, 35, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used flow mixing for making composite particles in McDaniel et al since Nguyen et al teach that mixing a dry proppant with other dry additives and a liquid can be carried out by utilizing conventional batch mixing or on-the-fly.

7. Claims 18-19, 32-36, 49, 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al in view of Nguyen et al.

Beck et al do not expressly teach that a fracturing fluid is pumped into a well (Claims 18, 35). However, Nguyen et al teach pumping of a fracturing fluid into a subterranean zone (See Abstract). Beck et al fails to teach that the reduced-density, a binder is mixed with particles on-the-fly (Claims 18, 35); the reduced-density, coated particulates are suspended in the servicing fluid on-the-fly (Claim 34).

Nguyen et al are applied here for the same reasons as above.

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As to claim 34, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have suspended the reduced-density, coated particulates in a servicing fluid in Beck et al on-the-fly since Nguyen et al teach that a suspension of fibrous bundles and proppant in a fracturing fluid can be accomplished by utilizing conventional batch mixing techniques to mix and suspend the bundles and proppant, or one or both of the bundles and proppant can be injected into the fracturing fluid on-the-fly.

As to claims 18, 35, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used flow mixing for making composite particles in Beck et al since Nguyen et al teach that mixing a dry proppant with other dry additives and a liquid can be carried out by utilizing conventional batch mixing or on-the-fly.

8. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDaniel et al/Beck et al in view of McDaniel et al/McDaniel et al in view of Nguyen et al/Beck et al in view of Nguyen et al/, further in view of Murphey et al (US 4665988).

The cited prior art fails to teach claimed solvent.

Murphey et al teach that the use of ethylene glycol butyl ether (See column 5, line 54) as a solvent for dissolving epoxy resins (See column 5, lines 47-48) such as bisphenol A-epichlorohydrin (See column 5, line 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used ethylene glycol butyl ether as a solvent in the cited prior art since Murphey et al teach that the use of ethylene glycol butyl ether as a solvent for dissolving epoxy resins such as bisphenol A-epichlorohydrin.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER



January 5, 2007